

# **QUARTERLY GROUND WATER MONITORING REPORT**

**YAKIMA AGRICULTURAL RESEARCH LABORATORY**

**QUARTER NUMBER 3 - APRIL 1991**

May 3, 1991

Our Project Number 90042

Prepared for  
U.S. Department of Agriculture

**USEPA SF**



**1599696**

HONG WEST & ASSOCIATES

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31.

# HONG WEST & ASSOCIATES

• Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection •

May 1, 1991

Lyndia Countee, Chief  
Service Contracts Section, CAD  
U.S.D.A.  
6303 Ivy Lane, Room 762  
Greenbelt, MD 20770-1433

RECD/ED

AUG 14 1992

RE: Quarterly Monitoring Report # 3  
March, 1991  
Contract No. 53-3K06-0-24  
Yakima Agricultural Research Laboratory

SUPERFUND

Dear Lyndia:

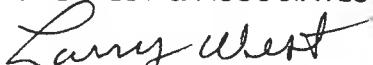
Attached please find one (1) copy of Hong West & Associates' *Quarterly Monitoring Report # 3*, submitted for USDA's use during the on-going RCRA Clean Closure effort. The Report is submitted in partial fulfillment of our contract with U.S.D.A. under Task 17. As required, five (5) copies of the Report have been transmitted to Mr. Alvin Humphrey of USDA for technical review and report dissemination.

In summary, the third monitoring did not repeat the minor concentrations of pesticides in ground water detected during the previous (November, 1990) monitoring event.

Should there be any questions or comments concerning this Report submittal, please direct them to myself or Doug Geller.

Respectfully submitted;

HONG WEST & ASSOCIATES



Larry West, Vice-President  
Project Director

LW/dg

cc: G. Sundstrom  
A. Humphrey  
D. Goldman  
G. Rosenthal

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## 1.0 Monitoring System Summary

Three additional ground water monitoring wells were installed at the YARL site during June and July of 1990. These in, combination with the four wells installed during the previous study (Biospherics, Inc. 1988), complete the RCRA detection monitoring system required for the Clean Closure effort.

Details of the new wells appear in a separate report (Well Construction Report, August 29, 1990). To summarize, two of the new wells were screened at intervals similar to the other four wells (the upper-most 10 feet of the site aquifer). The third well was installed as a deep sampling piezometer at 125 feet to provide information regarding vertical hydraulic and chemical gradients within the upper aquifer.

The approved Sampling and Analysis Plan includes one year (5 rounds) of quarterly ground water monitoring, sampling and analysis for a variety of indicator parameters, organic and inorganic compounds. Two previous Quarterly Reports have been submitted. This report documents the third quarterly monitoring results. The objectives of the monitoring are as follows:

1. Determine depth to ground water and direction of ground water flow monthly.
2. Quantify ground water quality up-gradient and down-gradient from the former waste management area on a quarterly basis. This sampling should screen for indicator parameters and a specified list of organic and inorganic compounds.
3. Provide substantive data for hydrogeologic evaluation, risk assessment and final site closure.

## 2.0 Monitoring Procedures

### 2.1 Well Monitoring

The YARL site was visited on February 20, 1991 by the Hong West Team for the purpose of conducting the third quarterly ground water monitoring and sampling field work. As per the approved Sampling and Analysis plan, a specific procedure was followed. First, water levels were taken in all the wells, with measurements made to the nearest .01 foot. Between each measurement, the well probe was decontaminated with a methanol wash followed by a distilled water rinse, to minimize the potential for well cross-contamination.

### 2.2 Well Purging

Once the static water levels were obtained, well purging and sampling commenced. The predetermined sampling order was followed, beginning with up-gradient and off-gradient wells and proceeding to wells directly down-gradient from the former septic tank and drainfield areas. Although not physically closest to these source areas, MW-C was sampled last because of its prior history of low detectable levels of volatile organics. The following sampling order was followed:

1. MW-D
2. MW-G

3. MW-B
4. MW-F
5. MW-E
6. MW-A
7. MW-C

Each well was purged using the dedicated Well Wizard pumps driven by an automatic controller which sent regular, periodic surges of nitrogen gas to displace the ground water to the surface via the pump's teflon tubing. During well purging, the pumped water was monitored for pH, temperature and conductivity. Purging was continued for a minimum of 5 well volumes and until the indicator parameters stabilized within +/- 10%.

### 2.3 Well Sampling

As per the approved Sampling and Analysis plan, samples were withdrawn from each well sequentially in decreasing order of volatility and instability, beginning with volatile organics (into 40 ml glass vials for 8240 analysis) then pesticides (into 1 gallon amber bottles for 8080, 8140 and 8150 analyses) and metals (500 ml poly cubes for 6010, 7000 and 7470 analyses).

After each well was sampled, the bottles were sealed with Chain of Custody seals, labeled and placed in iced coolers for priority shipment to the laboratory. A chain of custody was filled out at the same time and signed by the sampling technician. A field blank (prepared in the field) and trip blank (filled in the lab and shipped to and from the field) were added to the samples prior to shipment. A duplicate from MW-D (90042-0290-D2) was also taken.

The sample numbering scheme is as follows:

90042-1190-A1 refers to HWA project number 90042, November, 1990  
sample number one from Monitoring Well A.

Upon receiving the February 20, 1991 samples, the lab reported a number of broken sample bottles despite adequate packaging. In order to maintain reasonable data continuity, the Hong West Team elected to abandon analysis of the February, 1991 samples and re-sampled the wells on March 13, 1991.

The remainder of this report (with the exception of water levels recorded in February) is based on the March sampling.

### 3.0 Ground Water Observations

There is no history of high levels of ground water contamination at YARL; hence, sampling was performed at a personal safety level of D. During ground water sampling, no unusual water discoloration or odor was observed. The weather was seasonally cool, with temperatures in the 40s by early afternoon. A trace of precipitation had occurred in the Yakima area during the previous two weeks.

Ground water levels were measured on January 3, 1991, February 20, 1991, during the sampling event (March 13, 1991) and April 4, 1991. Water level depths averaged approximately 34 feet and flow was generally toward the southeast and east-southeast under a gradient of .004 ft/ft. The ground water contours for January, March and April are shown in Figures 2-A, 2-B and 2-C, respectively. Field data from the February water level measurements yielded anomalous contours; therefore, the data was not used to construct a contour map. Contours show the characteristic shift in

flow direction across the site from easterly to southeasterly. The source of this discrepancy is at present unknown, but may be related to off-site pumping, irrigation or diurnal fluctuations. Original field monitoring data sheets are presented in Appendix 2-1.

As observed previously, the water level in the deep piezometer, MW-E, was significantly higher than the upper aquifer monitoring well adjacent to it (MW-F), indicating the presence of a vertical gradient within the upper-most aquifer. To obtain an estimate of the vertical gradient, the difference in water table elevation in each well is divided by the elevation change between the top of each screened interval in the two wells:

<u>January, 1991</u>	<u>March, 1991</u>	<u>April, 1991</u>
.65'	1.20'	.80'
----- = .008	----- = .014	----- = .009
85.34'	85.34'	85.34'

Thus, the average vertical gradient is .010 ft per foot of hydraulic head in the aquifer interval between the deepest and shallowest screen elevation. Because the measured water level in the deep piezometer was higher than in the shallow well, the inferred vertical hydraulic gradient is upward, indicating the site is located in an area of ground water discharge.

Data from MW-E was not used to construct Figures 1-A and 1-B because of its position deep within the upper-most aquifer. Data from MW-B was not used because measured water levels in this well have consistently produced anomalous apparent flow patterns.

#### 4.0 Analytical Methods and Results

For a complete description of each analytical method, refer to the Project Plan and Sampling and Analysis Plan. In summary, each sample was analyzed for a variety of organic and inorganic contaminants including:

- TCL Volatile Organics EPA method 8240
- Chlorinated Pesticides EPA method 8080
- Herbicides/Organophosphate Insecticides EPA methods 8150 and 8140
- TCL Metals EPA Method 6010, 7444, 7000

Analytical results are presented in Appendix 2-2.

#### 5.0 Interpretation of Results

##### 5.1 TCL Volatile Organics

No volatile organics were detected in any of the samples taken or in the trip blank or field blank samples. Full analytical results are presented in Appendix 2-2.

## 5.2 Pesticides, Herbicides and Insecticides

Of the 33 compounds analyzed for, none were detected in any of the well samples. None were detected in the trip blank or field blank samples.

The November, 1990 monitoring event represented the first pesticide detections in ground water at YARL. These low to very low parts-per-billion levels were not confirmed during the third quarter monitoring.

## 5.3 TCL Metals

Detectable levels of some metals were recorded (for example calcium, magnesium and Sodium), however none of the concentrations exceed federal or state ground water standards for specific metals for the state of Washington.

No other contaminants of concern were identified during the March, 1991 monitoring event. Analytical methodology, chronology and a non-conformance summary appear in Appendix 2-2. Non-conformances are summarized at the beginning of the laboratory report in Appendix 2-2.

YARL Ground Water Level 1-3-91

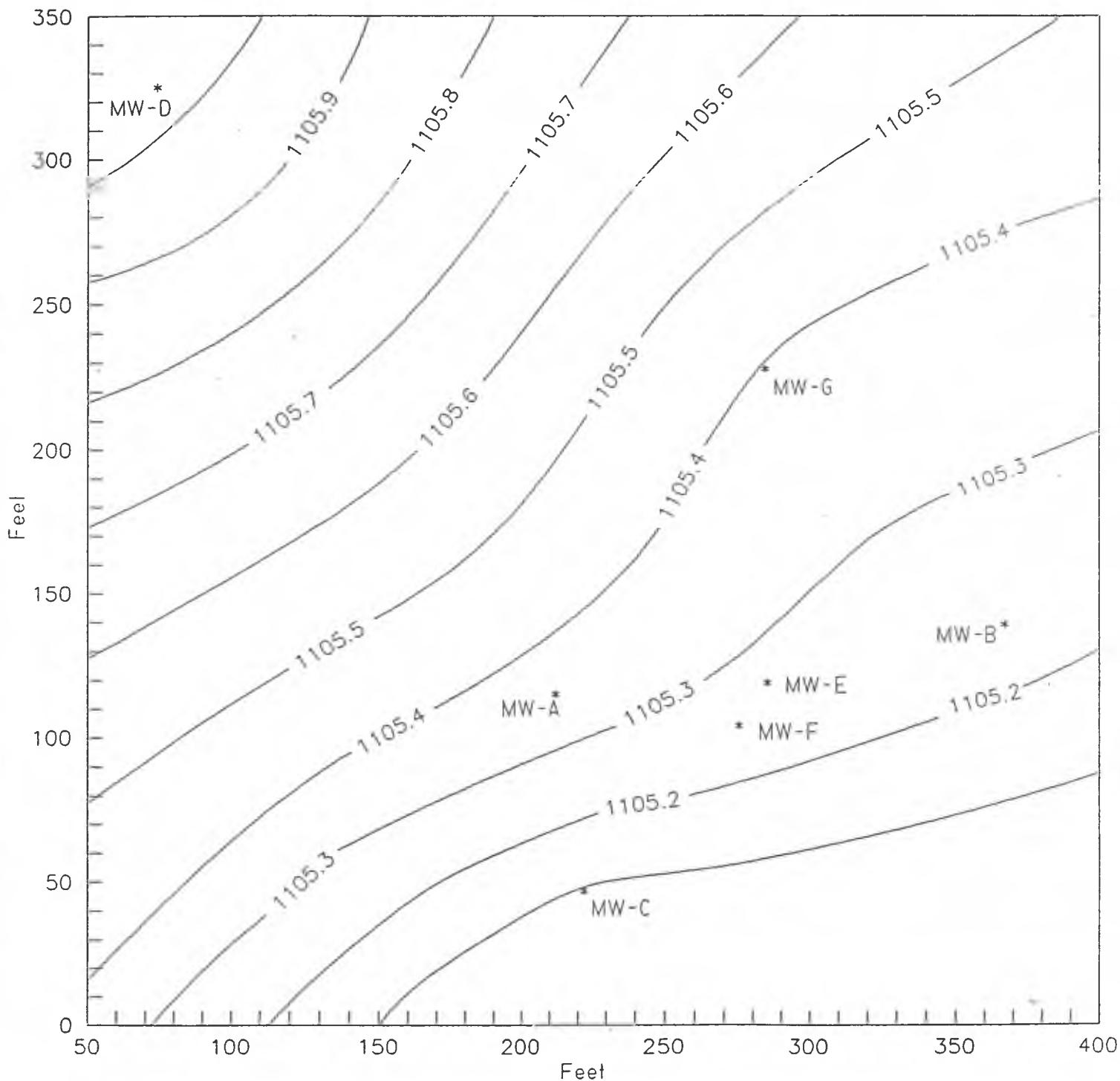


FIGURE 2-A

YARL Ground Water Level 3-13-91

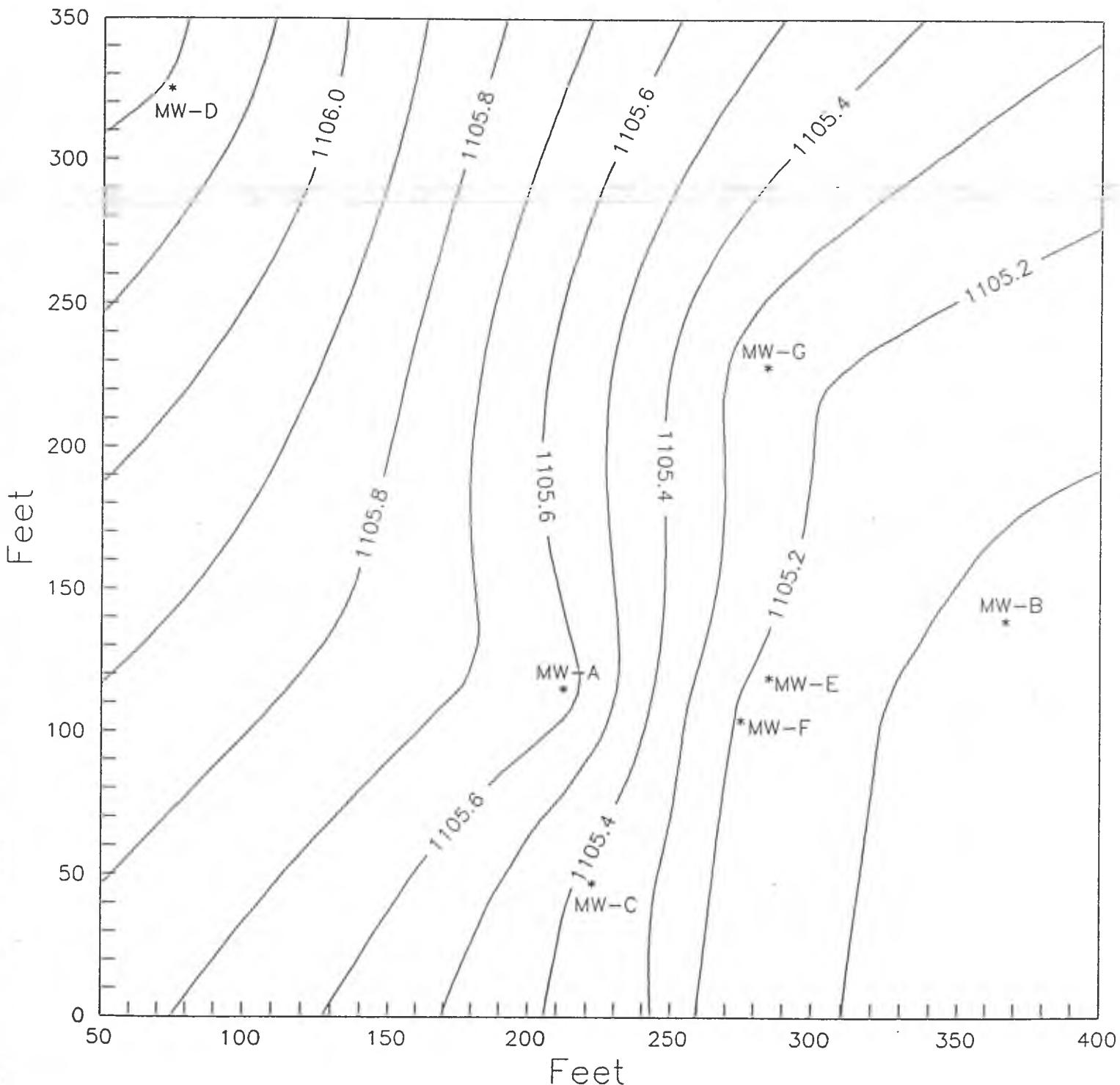


FIGURE 2-B

YARL Ground Water Level 4-4-91

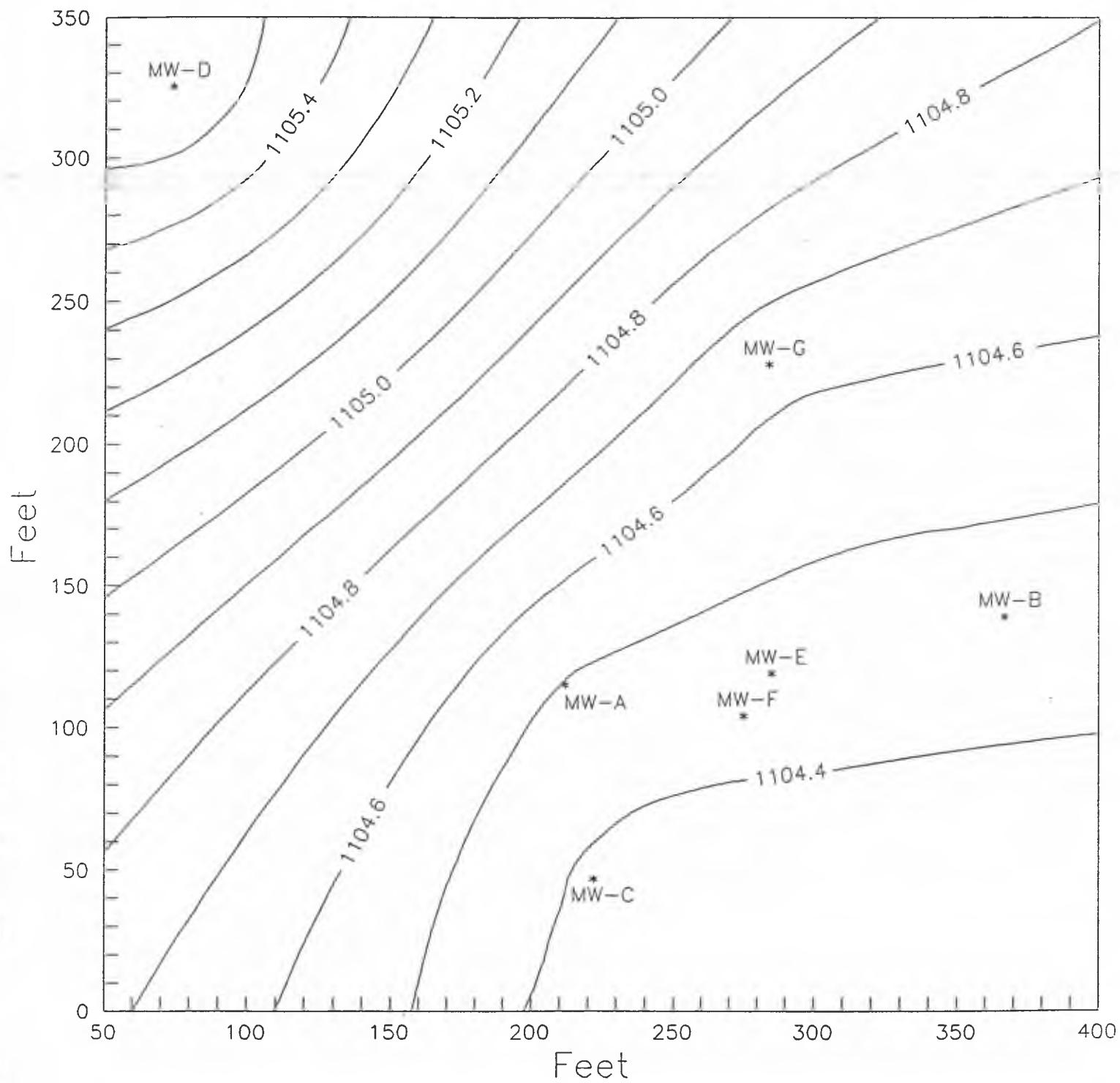


FIGURE 2-C

YARL Water Level Database

TOC	Elevations in Feet						
	MW-A	MW-B	MW-C	MW-D	MW-E	MW-F	MW-G
Jun-88	1141.54	1141.94	1140.98	1141.00	1141.03	1141.28	1142.43
Jul-88	1106.18	1106.36	1106.04	1107.19			
Aug-88	1106.43	1106.21	1106.23	1107.43			
Sep-88	1106.60	1106.78	1106.43	1107.66			
Dec-88	1106.59	1106.78	1106.50	1107.74			
Mar-89	1105.72	1105.90	1105.54	1106.71			
Jun-89	1105.16	1105.35	1104.98	1106.25			
Sep-89	1105.29	1105.48	1105.11	1106.40			
Sep-89	1106.57	1106.74	1106.37	1107.64			
Mar-90	1104.98	1105.14	1104.78	1106.06			
25-Jun-90	1105.47	1105.62	1105.33	1106.45	1106.49	1106.05	1105.69
7-Aug-90	1106.64	1106.70	1106.32	1107.32	1107.15	1106.13	1106.28
4-Sep-90	1106.33	1106.51	1106.13	1107.25	1106.82	1106.26	1106.48
22-Oct-90	1106.18	1106.34	1106.10	1107.05	1106.77	1106.18	1106.38
14-Nov-90	1106.86	1106.85	1106.51	1107.30	1107.39	1106.34	1106.52
12-Dec-90	1105.46	1105.64	1105.26	1106.27	1106.13	1105.38	1105.57
3-Jan-91	1105.38	1105.33	*1105.08	1106.06	1105.91	1105.26	1105.38
#20-Feb-91	1105.81	1105.79	1107.46	1106.40	1105.06	1106.79	1104.93
13-Mar-91	1105.65	1105.63	1105.37	1106.21	1106.36	1105.16	1105.23
4-Apr-91	1104.49	1104.64	1104.38	1105.60	1105.23	1104.43	1104.63

\* Corrected value to average water level drop.

Original reading error.

# Bad data. No contour map constructed for this date.

FIGURE 2-D

**APPENDIX 2-1**  
**FIELD MONITORING DATA SHEETS**

# HONG WEST & ASSOCIATES

• Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection •

## FIELD MONITORING DATA SHEET

PROJECT NAME: YAC  
PROJECT NUMBER: 50042  
PAGE 1 OF 2

WEATHER: SUNNY COLD

3706 W. Nob Hill  
LOCATION: YAKIMA, WA  
ADDRESS:  
DATE: 1-3-91  
CLIENT: USDA

### WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
MW-4	1-3-91 8:06	1141.54	n/a	42	36.16	1105.38	
		1141.94	n/a	47	36.61	1105.33	
C	8:13	1140.98	n/a	missing	missing	1105.08*	
D	8:19	1141.00	n/a	46	34.94	1106.06	

### WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE FLOW, GPM	ELASPED T 95% EQ.

### WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST

### INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION)			(AFTER SAMPLING)		
		TEMP	COND.	pH	TEMP	COND.	pH

COMMENTS:

NAME: *Doug Geller*

# HONG WEST & ASSOCIATES

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## FIELD MONITORING DATA SHEET

PROJECT NAME: YARL

PROJECT NUMBER:

PAGE 2 OF 2

WEATHER:

LOCATION:

ADDRESS:

DATE: 1-3-51

CLIENT:

## WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
E	1-3-91 8:22	1141.03	n/a	128	35.12	1105.91	
F	8:29	1141.28	n/a	49	36.02	1105.26	
G	8:32	1142.43	n/a	50	37.05	1105.38	

## WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	APPROX. # PORE VOL.	RINSE METH.	ELASPED T FLOW, GPM	95% EQ.

## WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST

## INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION)			(AFTER SAMPLING)		
		TEMP	COND.	pH	TEMP	COND.	pH

COMMENTS:

NAME: *Dog Getler*

# HONG WEST & ASSOCIATES

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3RD QUARTER

## FIELD MONITORING DATA SHEET

PROJECT NAME: YARL

PROJECT NUMBER: 90042

PAGE 1 OF 2

WEATHER: SUNNY 40°

LOCATION: 3706 W. NOR HILL BLVD.  
YAKIMA, WA  
ADDRESS:  
DATE: 2-20-91  
CLIENT: USDA/ARS

### WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV. **	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
MW-A	2-20-91 0735	1141.54	n/a	42	35.73	1105.81	1.0
MW-B	0723	1141.74	n/a	47	56.15	1105.19	1.7
MW-C	0730	1140.98	n/a	42	SAD OR MISSING DATA	—	—
MW-D	0730	1141.00	n/a	46	34.60	1106.40	1.8

### WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE METH.	ELASPED T FLOW, GPM 95% EQ.	
MW-A	2-20-91 0930	WELL WIZARD	3+	n/a	<1	15 MIN.
MW-B	0915	"	"	"	"	"
MW-C	1200	"	"	"	"	"
MW-D	0915	"	"	"	"	"

### WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST
MW-A	2-20-91 0940	90042-0291 -A1	/	/	8240	/	/	6010	/
MW-B	0920	-B1	/	/	/	/	/	/	8140 8150 8080
MW-C	1205	-C1	/	/	/	/	/	/	/
MW-D	0920	-D1*	/	/	/	/	/	/	/

### INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	TEMP	(AFTER STABILIZATION) COND.	PH	TEMP	(AFTER SAMPLING) COND.	PH
MW-A	2-20-91 0940	14° C	1142	7.34	/	/	/
MW-B	0920	14°	1462	7.14	/	/	/
MW-C	1205	15°	1065	7.36	/	/	/
MW-D	0920	13°	1144	6.60	/	/	/

COMMENTS: \* ALSO TOOK DUPLICATE (D2)

\*\* TOP OF CASING

1. water clear & odorless
2. Sampled by Rebecca Hyland, SE/EE
3. All samples iced & sealed

500 ml. poly preserved  
w/ HNO<sub>3</sub>

NAME: Doug Geller

# HONG WEST & ASSOCIATES

\* Geotechnical Engineering • Hydrogeology • Materials Testing • Construction Inspection \*

## FIELD MONITORING DATA SHEET

PROJECT NAME: YALE  
PROJECT NUMBER: 70042  
PAGE 2 OF 2

WEATHER: SUNNY 40°

LOCATION: 3706 N. 103RD HILL  
ADDRESS: YALE WA, WA.  
DATE: 2-20-91  
CLIENT: USDA /ARS

## WELL MONITORING

WELL NUM.	DATE/ TIME	WELL # ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
MW-E	2-20-91 0738	1121.03	N/A	128	5.97	1105.06	141.7
MW-F	2-20-91 1020	1111.25	N/A	40	2.47	1106.79	2.3
MW-G	0900	1142.43	N/A	50	37.50	1104.93	2.0

## WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE METH.	FLOW, GPM	ELASPED T 95% EQ.
MW-E	2-20-91 0735	WELL WASH	3+	N/A	<1	<5 min
MW-F	1020	"	"	"	"	"
MW-G	0955	"	"	"	"	"

## WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST
MW-E	2-20-91 0740	E1		8240			6010		2140 2080
MW-F	1025	-F1		"			"		"
MW-G	0900	G1		"			"		"

## INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION)			(AFTER SAMPLING)		
		TEMP	COND.	pH	TEMP	COND.	pH
MW-E	2-20-91 0740	14	802	7.7			
MW-F	1025	15	1090	7.57			
MW-G	0900	13	1119	7.43			

COMMENTS: \* TOP OF CASING

NAME: Doug Geller

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## FIELD MONITORING DATA SHEET

PROJECT NAME: YARD  
PROJECT NUMBER: 90042  
PAGE 1 OF 2

WEATHER:

LOCATION:  
ADDRESS:  
DATE: 4-4-91  
CLIENT: USDA

## WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H2O	WATER ELEV.	GALLONS IN WELL
A	4-4-91 3:30 P				37.05		
B	4-4-91 3:30 P				37.20		
C	4-4-91 3:39				36.60		
D	4-4-91 3:42				35.40		

## WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE FLOW, GPM	ELASPED T 95% EQ.

## WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER	PLAST

## INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION)			(AFTER SAMPLING)		
		TEMP	COND.	pH	TEMP	COND.	pH

COMMENTS:

NAME: Doug Geller

# HONG WEST & ASSOCIATES

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## FIELD MONITORING DATA SHEET

PROJECT NAME:

PROJECT NUMBER:

PAGE 2 OF 2

WEATHER:

LOCATION:

ADDRESS:

DATE: 4-4-91

CLIENT:

## WELL MONITORING

WELL NUM.	DATE/ TIME	WELL ELEV.	IMMISC. THICK.	TOTAL DEPTH	DEPTH TO H <sub>2</sub> O	WATER ELEV.	GALLONS IN WELL
E	4-4-91 3:46				35.85		
F	3:51				36.85		
G	3:55				37.80		

## WELL PURGING

WELL NUM.	DATE/ TIME	METHOD	# PORE VOL.	APPROX. RINSE METH.	ELASPED T FLOW, GPM	95% EQ.

## WELL SAMPLING

WELL NUM.	DATE/ TIME	SAMPLE NUMBER	250 ml AMBER	40 ml VOA	1 L GLASS	100 ml POLY	500 ml POLY	1 L POLY	1 GAL AMBER PLAST

## INDICATOR PARAMETERS

WELL NUM.	DATE/ TIME	(AFTER STABILIZATION)			(AFTER SAMPLING)		
		TEMP	COND.	pH	TEMP	COND.	pH

COMMENTS:

NAME: *D. Selle*

**APPENDIX 2-2**

**ORIGINAL LABORATORY DATA AND CHAIN OF CUSTODY**



April 23, 1991

Mr. Doug Geller  
Hong West & Associates  
157 Yesler Way  
Suite 505  
Seattle, Washington 98104

RE: Lab # 91-03-1411

Dear Mr. Geller:

Enclosed please find the results from analyses performed on recently received samples.

If you have any questions concerning the results, please do not hesitate to call me.

Sincerely,

*Lee Zehener*  
Lee Zehener (for)  
Director  
Laboratory Division

LZ:rg  
enclosure

**BIOSPHERICS INCORPORATED**

CLIENT: Hong West

DATE COLLECTED: March 13, 1991

DATE RECEIVED: March 14, 1991

MATRIX: Water

LAB I.D.: 91-03-1411

Analytical Methodology/Sample Chronicle

<u>Parameter</u>	<u>Method</u>	<u>Date Extracted</u>	<u>Date Analyzed</u>
Metals	EPA 6010/7000's	3/15/91	3/18-28/91
Mercury	EPA 7470	3/18/91	3/18/91
Pesticides/PCB's	EPA 8080	3/15,25/91	3/18,27/91
Organophosphorus Pesticides	EPA 8140	3/15/91	3/21/91,4/3/91
Volatile Organics	EPA 8240		3/15/91
Herbicides	EPA 8150	3/15/91	3/20/91

Non-conformance Summary

Volatile Organics

Samples 90042-0391-B1, 90042-0391-E1, and Trip Blank contained air bubbles.

Pesticides/PCB's

Aldrin and heptachlor spikes yielded low recoveries in the spike blank, matrix spike and matrix spike duplicate, in the analysis on 03/18/91. Samples were reextracted 5 days outside of holding time. Results were within acceptable limits for the reextracted samples.

Organophosphorus Pesticides

During the first analysis on 03/19/91, ethyl parathion recovery was acceptable in the spike blank. The run was aborted due to instrumentation problems. In the second analysis, recovery for ethyl parathion was above the acceptable limit for the spike blank (265%), matrix spike (319%), and matrix spike duplicate (161%). However, TEPP, phorate, and surrogate recoveries were within the acceptable ranges. Results included here are from the second analytical run.

Herbicides

Recoveries for 2,4-D (36%), Silvex (21%), and 2,4,5-T (25%) were below the acceptable limit in the spike blank. The poor recovery apparently originated in the spiking procedure during the extraction of the spike blank. Since the surrogate and other QC's were within the acceptable ranges, the data was released with confidence.

**BIOSPHERICS INCORPORATED**

**HONG-WEST TCL RESULTS-METALS**

DATE COLLECTED: March 13, 1991

DATE RECEIVED: March 14, 1991

MATRIX: Water

UNITS:  $\mu\text{g/L}$

LAB I.D.: 91-03-1411

Client I.D.:	90042-0391-D1	90042-0391-D2	90042-0391-G1	90042-0391-B1
--------------	---------------	---------------	---------------	---------------

Lab I.D.:	1	2	3	4
-----------	---	---	---	---

Parameter:

Aluminum	<200	<200	<200	<200
Antimony	<60	<60	<60	<60
Arsenic	<10	<10	<10	<10
Barium	<200	<200	<200	<200
Beryllium	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0
Calcium	75100	74100	73200	94500
Chromium	<10	<10	<10	<10
Cobalt	<50	<50	<50	<50
Copper	<25	<25	<25	<25
Iron	<100	<100	<100	574
Lead	<3.0	<3.0	<3.0	<3.0
Magnesium	48400	46400	46300	61700
Manganese	<15	<15	<15	16.9
Mercury	<0.2	<0.2	<0.2	<0.2
Nickel	<40	<40	<40	<40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: March 13, 1991

DATE RECEIVED: March 14, 1991

MATRIX: Water

UNITS:  $\mu\text{g/L}$

LAB I.D.: 91-03-1411

Client I.D.:	90042-0391-D1	90042-0391-D2	90042-0391-G1	90042-0391-B1
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Lab I.D.:	1	2	3	4
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Parameter:

Potassium	<5000	<5000	<5000	<5000
Selenium	<5.0	<5.0	<5.0	<5.0
Silver	<10	<10	<10	<10
Sodium	69200	67400	64900	69300
Thallium	<10	<10	<10	<10
Tin	<30	<30	<30	<30
Vanadium	67.1	66.1	62.8	68.6
Zinc	<20	<20	<20	<20

## BIOSPHERICS INCORPORATED

## HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: March 13, 1991

DATE RECEIVED: March 14, 1991

MATRIX: Water

UNITS:  $\mu\text{g/L}$ 

LAB ID: 91-03-1411

Client I.D.:	90042-0391-A1	90042-0391-F1	90042-0391-E1	90042-0391-C1
Lab I.D.:	5	6	7	8
Parameter:				
Aluminum	<200	<200	<200	<200
Antimony	<60	<60	<60	<60
Arsenic	<10	<10	<10	<10
Barium	<200	<200	<200	<200
Beryllium	<5.0	<5.0	<5.0	<5.0
Cadmium	<5.0	<5.0	<5.0	<5.0
Calcium	78200	76700	60800	75300
Chromium	<10	<10	<10	<10
Cobalt	<50	<50	<50	<50
Copper	<25	<25	<25	<25
Iron	<100	<100	<100	<100
Lead	<3.0	<3.0	<3.0	<3.0
Magnesium	44400	47200	29700	43700
Manganese	<15	<15	<15	<15
Mercury	<0.2	<0.2	<0.2	<0.2
Nickel	<40	<40	<40	<40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: March 13, 1991

DATE RECEIVED: March 14, 1991

MATRIX: Water

UNITS:  $\mu\text{g/L}$

LAB I.D.: 91 03-1411

Client I.D.:	90042-0391-A1	90042-0391-F1	90042-0391-E1	90042-0391-C1
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Lab I.D.:	5	6	7	8
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Parameter:

Potassium	<5000	<5000	5690	<5000
Selenium	<5.0	<5.0	<5.0	<5.0
Silver	<10	<10	<10	<10
Sodium	66500	64600	33500	61500
Thallium	<10	<10	<10	<10
Tin	<30	<30	<30	<30
Vanadium	54.8	64.6	<50	62.6
Zinc	<20	<20	<20	<20

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS:  $\mu\text{g/L}$

LAB I.D.: 90-11-1501

Client I.D.:	Blank	Quantitation Limit
Lab I.D.:	9	

Parameter:

Aluminum	<200	200
Antimony	<60	60
Arsenic	<10	10
Barium	<200	200
Beryllium	<5.0	5.0
Cadmium	<5.0	5.0
Calcium	<1000	1000
Chromium	<10	10
Cobalt	<50	50
Copper	<25	25
Iron	<100	100
Lead	<3.0	3.0
Magnesium	<1000	1000
Manganese	<15	15
Mercury	<0.2	0.2
Nickel	<40	40

BIOSPHERICS INCORPORATED

HONG-WEST TCL RESULTS-METALS

DATE COLLECTED: November 14, 1990

DATE RECEIVED: November 15, 1990

MATRIX: Water

UNITS:  $\mu\text{g/L}$

LAB I.D.: 90-11-1501

Client I.D.:	Blank	Quantitation Limit
Lab I.D.:	9	

Parameter:

Potassium	<5000	5000
Selenium	<5.0	5.0
Silver	<10	10
Sodium	<5000	5000
Thallium	<200	200
Tin	<50	50
Vanadium	<50	50
Zinc	<20	20

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG742::D0  
 Lab. No: 91031411-1  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-D1)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 17:22

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	-5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG743::D0  
 Lab. No: 91031411-2  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-02)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 17:46

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG744:::D0  
 Lab. No: 91031411-3  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-G1)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 18:10

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG745::D0  
 Lab. No: 91031411-4  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-B1)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 18:34

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG746::D0  
 Lab. No: 91031411-5  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-A1)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 18:57

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG747::D0  
 Lab. No: 91031411-6  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-F1)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 19:21

CAS #	Compound Name	Conc(ug/L )	CAS #	Compound Name	Conc(ug/L )
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG748::D0  
 Lab. No: 91031411-7  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-E1)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 19:45

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
 VOLATILES ANALYSIS REPORT  
 REFERENCED METHOD:8240

Data File: >BG749::D0  
 Lab. No: 91031411-8  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (90042-0391-C1)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 20:09

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG750::D0  
 Lab. No: 91031411-9  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (FIELDBLANK)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 20:33

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

BIOSPHERICS  
VOLATILES ANALYSIS REPORT  
REFERENCED METHOD:8240

Data File: >BG751::D0  
 Lab. No: 91031411-10  
 Matrix: WATER  
 Instrument ID: GC/MS:B(HP5970)

Client ID: HONG-WEST (TRIPBLANK)  
 Date Collected: 3/13/91  
 Date Analyzed: 3/15/91 20:56

CAS #	Compound Name	Conc(ug/L)	CAS #	Compound Name	Conc(ug/L)
74-87-3	Chloromethane	10. N	75-27-4	Bromodichloromethane	5. N
74-83-9	Bromomethane	10. N	78-87-5	1,2-Dichloropropane	5. N
75-01-4	Vinyl Chloride	10. N	10061-01-5	cis-1,3-Dichloropropene	5. N
75-00-3	Chloroethane	10. N	79-01-6	Trichloroethene	5. N
75-09-2	Methylene Chloride	5. N	124-48-1	Dibromochloromethane	5. N
67-64-1	Acetone	100. N	79-00-5	1,1,2-Trichloroethane	5. N
75-69-4	Trichlorofluoromethane	5. N	71-43-2	Benzene	5. N
75-15-0	Carbon Disulfide	5. N	10061-02-6	trans-1,3-Dichloropropene	5. N
107-02-8	Acrolein	50. N	110-75-8	2-Chloroethyl vinyl ether	10. N
107-13-1	Acrylonitrile	50. N	75-25-2	Bromoform	5. N
75-35-4	1,1-Dichloroethene	5. N	108-10-1	4-Methyl-2-Pentanone	50. N
75-34-3	1,1-Dichloroethane	5. N	591-78-6	2-Hexanone	50. N
540-59-0	trans-1,2-Dichloroethene	5. N	127-18-4	Tetrachloroethene	5. N
67-66-3	Chloroform	5. N	79-34-5	1,1,2,2-Tetrachloroethane	5. N
107-06-2	1,2-Dichloroethane	5. N	108-88-3	Toluene	5. N
78-93-3	2-Butanone	100. N	108-90-7	Chlorobenzene	5. N
71-55-6	1,1,1-Trichloroethane	5. N	100-41-4	Ethylbenzene	5. N
56-23-5	Carbon Tetrachloride	5. N	100-42-5	Styrene	5. N
108-05-4	Vinyl Acetate	50. N	1330-20-7	Total Xylenes	5. N

Qualifier descriptions: N - Compound analyzed for but not detected.  
 Number reported is the detection limit.  
 \* - Compound is present but less than detection limit. Should be considered an approximation.

**ORGANIC ANALYSIS DATA SHEET**  
**PESTICIDE/PCBs**

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	1	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-D1	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA X180	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      130

BQL - Below Practical Quantitation Limit  
All results qualitatively confirmed by second column

**ORGANIC ANALYSIS DATA SHEET**  
**PESTICIDE/PCBs**

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	2	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-D2	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      110

BQL - Below Practical Quantitation Limit  
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET  
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	3	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-G1	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      120

BQL - Below Practical Quantitation Limit

All results qualitatively confirmed by second column

**ORGANIC ANALYSIS DATA SHEET**  
**PESTICIDE/PCBs**

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	4	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-B1	DATE EXTRACTED:	3/25/91
DETERMINED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      120

BQL - Below Practical Quantitation Limit  
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET  
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	5	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-A1	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      120

BQL - Below Practical Quantitation Limit  
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET  
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	6	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-F1	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      110

BQL - Below Practical Quantitation Limit  
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET  
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	7	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-E1	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      120

BQL - Below Practical Quantitation Limit  
 All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET  
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	8	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-C1	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number	Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	0.02
319-87-7	Beta-BHC	0.02
319-86-8	Delta-BHC	0.02
58-89-9	Lindane	0.02
76-44-8	Heptachlor	0.02
309-00-2	Aldrin	0.02
1024-57-3	Heptachlor Epoxide	0.02
959-98-8	Endosulfan I	0.02
60-57-1	Dieldrin	0.02
75-55-9	4,4'-DDE	0.02
72-20-8	Endrin	0.02
33213-65-9	Endosulfan II	0.02
72-54-8	4,4'-DDD	0.02
1031-07-8	Endosulfan Sulfate	0.02
50-29-3	4,4'-DDT	0.02
72-43-5	Methoxychlor	0.02
7421-93-4	Endrin Aldehyde	0.02
57-74-9	Chlordane	0.16
8001-35-2	Toxaphene	1.0
12674-11-2	Aroclor-1016	0.2
11104-28-2	Aroclor-1221	0.2
11141-16-5	Aroclor-1232	0.2
53469-21-9	Aroclor-1242	0.2
12672-29-6	Aroclor-1248	0.2
11097-69-1	Aroclor-1254	0.2
11096-82-5	Aroclor-1260	0.2

Surrogate % Rec.      100

BQL - Below Practical Quantitation Limit  
All results qualitatively confirmed by second column

ORGANIC ANALYSIS DATA SHEET  
PESTICIDE/PCBs

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91031411	UNITS:	$\mu\text{g/L}$
LAB No.:	9	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West	DATE RECEIVED:	3/14/91
CLIENT I.D.:	Field Blank	DATE EXTRACTED:	3/25/91
REFERENCED METHOD:	EPA 8080	DATE ANALYZED:	3/27/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
319-84-6	Alpha-BHC	BQL	0.02
319-87-7	Beta-BHC	BQL	0.02
319-86-8	Delta-BHC	BQL	0.02
58-89-9	Lindane	BQL	0.02
76-44-8	Heptachlor	BQL	0.02
309-00-2	Aldrin	BQL	0.02
1024-57-3	Heptachlor Epoxide	BQL	0.02
959-98-8	Endosulfan I	BQL	0.02
60-57-1	Dieldrin	BQL	0.02
75-55-9	4,4'-DDE	BQL	0.02
72-20-8	Endrin	BQL	0.02
33213-65-9	Endosulfan II	BQL	0.02
72-54-8	4,4'-DDD	BQL	0.02
1031-07-8	Endosulfan Sulfate	BQL	0.02
50-29-3	4,4'-DDT	BQL	0.02
72-43-5	Methoxychlor	BQL	0.02
7421-93-4	Endrin Aldehyde	BQL	0.02
57-74-9	Chlordane	BQL	0.16
8001-35-2	Toxaphene	BQL	1.0
12674-11-2	Aroclor-1016	BQL	0.2
11104-28-2	Aroclor-1221	BQL	0.2
11141-16-5	Aroclor-1232	BQL	0.2
53469-21-9	Aroclor-1242	BQL	0.2
12672-29-6	Aroclor-1248	BQL	0.2
11097-69-1	Aroclor-1254	BQL	0.2
11096-82-5	Aroclor-1260	BQL	0.2

Surrogate % Rec.      110

BQL - Below Practical Quantitation Limit  
All results qualitatively confirmed by second column

**ORGANIC ANALYSIS DATA SHEET**  
**ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 1 DATE COLLECTED: 3/15/91  
CLIENT NAME: Hong West & Associates DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-D1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8140 DATE ANALYZED: 4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 128

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET**  
**ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-03-1411

UNITS:  $\mu\text{g/L}$

LAB NO.: 2

DATE COLLECTED: 3/13/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 3/14/91

CLIENT I.D.: 90042-0391-D2

DATE EXTRACTED: 3/15/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 151

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET**  
**ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-03-1411

UNITS:  $\mu\text{g/L}$

LAB No.: 3

DATE COLLECTED: 3/13/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 3/14/91

CLIENT I.D.: 90042-0391-G1

DATE EXTRACTED: 3/15/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 127

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET**  
**ORGANOPHOSPHORUS PESTICIDES**

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91-03-1411	UNITS:	$\mu\text{g/L}$
LAB No.:	4	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-B1	DATE EXTRACTED:	3/15/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 99

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET**  
**ORGANOPHOSPHORUS PESTICIDES**

LAB NAME:	Biospherics Inc.	MATRIX:	Water
CASE No.:	91-03-1411	UNITS:	$\mu\text{g/L}$
LAB NO.:	5	DATE COLLECTED:	3/13/91
CLIENT NAME:	Hong West & Associates	DATE RECEIVED:	3/14/91
CLIENT I.D.:	90042-0391-A1	DATE EXTRACTED:	3/15/91
REFERENCED METHOD:	EPA 8140	DATE ANALYZED:	4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 102

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET**  
**ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-03-1411

UNITS:  $\mu\text{g/L}$

LAB NO.: 6

DATE COLLECTED: 3/13/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 3/14/91

CLIENT I.D.: 90042-0391-F1

DATE EXTRACTED: 3/15/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 99

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET**  
**ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 7 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West & Associates DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-E1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8140 DATE ANALYZED: 4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 62

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET  
ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 6 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West & Associates DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-C1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8140 DATE ANALYZED: 4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 91

BQL - Below Practical Quantitation Limit

**ORGANIC ANALYSIS DATA SHEET  
ORGANOPHOSPHORUS PESTICIDES**

LAB NAME: Biospherics Inc.

MATRIX: Water

CASE No.: 91-03-1411

UNITS:  $\mu\text{g/L}$

~~LAB NO.:~~ 0

~~DATE COLLECTED:~~ 3/13/91

CLIENT NAME: Hong West & Associates

DATE RECEIVED: 3/14/91

CLIENT I.D.: Field Blank

DATE EXTRACTED: 3/15/91

REFERENCED METHOD: EPA 8140

DATE ANALYZED: 4/3/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
107-49-3	TEPP	BQL	5.0
2600-69-3	Phorate	BQL	0.2
298-04-4	Disulfoton	BQL	0.2
298-00-0	Methyl Parathion	BQL	0.2
121-75-5	Malathion	BQL	0.2
2921-88-2	Dursban	BQL	0.2
56-38-2	Ethyl Parathion	BQL	0.2
333-41-5	Diazinon	BQL	0.2
55-38-9	Fenthion	BQL	0.2
86-50-0	Azinophos-methyl	BQL	0.8
311-45-5	Paraoxon	BQL	2.0

Surrogate % Rec. 89

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 1 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT ID.: 90042 03291 D1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 2 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT ID.: 00042-0301-D2 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 100

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 3 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-G1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 120

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 4 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-B1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 120

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 5 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-U391-A1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 130

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 6 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-F1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 110

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 7 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-E1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 99

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 8 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT I.D.: 90042-0391-C1 DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 130

BQL - Below Practical Quantitation Limit

ORGANIC ANALYSIS DATA SHEET  
HERBICIDES

LAB NAME: Biospherics Inc. MATRIX: Water  
CASE No.: 91-03-1411 UNITS:  $\mu\text{g/L}$   
LAB No.: 9 DATE COLLECTED: 3/13/91  
CLIENT NAME: Hong West DATE RECEIVED: 3/14/91  
CLIENT I.D.: Field Blank DATE EXTRACTED: 3/15/91  
REFERENCED METHOD: EPA 8150 DATE ANALYZED: 3/20/91

C.A.S. Number		Sample Quantitation	Practical Quantitation Limit
94-75-7	2,4-D	BQL	0.1
93-72-1	Silvex	BQL	0.1
88-85-7	Dinoseb	BQL	0.1

Surrogate % Rec. 140

BQL - Below Practical Quantitation Limit

**BIOSPHERICS® INCORPORATED**

12051 Indian Creek Ct.  
Beltsville, MD 20705  
(301) 369-3900

## Chain of Custody Record

Project: Quarterly Site: Yakima

Client: Doug Geller-Hong West Phone: (206) 774-0106

**Address:**

Sampler's Name/Firm: Rebecca Hylland-Sweet Edwards  
Phone: 485-5002 Sampler's Signature: Rebecca Hylland-Sweet Edwards

Sample Number	Date	Time	Matrix	No. of Containers	VOM	81	80	81	60/10 Pb/R	74	Hg	Remarks or Sample Location
90042-0391-D1	3/13/91	0835	water	4	X	X	X	X	X			
90042-0391-D2	3/13/91	0835	"	4	X	X	X	X	X	X		
90042-0391-G1	"	0945	"	4	X	X	X	X	X	X		
90042-0391-B1	"	1015	"	4	X	X	X	X	X	X		
90042-0391-A1	"	1045	"	4	X	X	X	X	X	X		
90042-0391-F1	"	1125	"	4	X	X	X	X	X	X		
90042-0391-E1	"	1240	"	4	X	X	X	X	X	X		
90042-0391-C1	"	1310	"	4	X	X	X	X	X	X		
Fieldblank	"	1205	"	4	X	X	X	X	X	X		
Triphlank	"		"	2	X							

Relinquished by: (Signature) <i>Rebecca L Hylland</i>	Date/Time 2/13/14 12:45 PM	Received by: (Signature)	Relinquished by: (Signature) <i>Rebecca L Hylland</i>	Date/Time 2/13/14 12:45 PM	Shipping Carrier: Federal Express
Relinquished by: (Signature) <i>Rebecca L Hylland</i>	Date/Time 2/13/14 12:45 PM	Received by: (Signature)	Received for Laboratory by: (Signature) <i>Rebecca L Hylland</i>	Date/Time 2/13/14 12:45 PM	Shipping Ticket Number: 8452271660
Relinquished by: (Signature) <i>Rebecca L Hylland</i>	Date/Time 2/13/14 12:45 PM	Received by: (Signature)	Chain of Custody Seal: (Circle) Intact      Broken      Aberry	No Remarks	